User Guide

GIA® Gemolite® NXT

Photomicroscope

GIA®

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Introduction

The **GIA® Gemolite® NXT Photomicroscope** is the ultimate tool to display and document gems. View, record, and analyze gems in real-time directly on a computer screen using this photomicroscope combined with GIA's Gemolite® NXT viewing software.

- **Document** client stones for repairs at the take-in counter.
- **Show and sell** a gem's unique features and characteristics to your clients.
- **Earn confidence and trust** with personal demonstrations displayed on a monitor.

This user guide will help you get started using the GIA® Gemolite® NXT Photomicroscope and accompanying software.

Need more assistance? Contact us at **instrumentsupport@gia.edu**.

Part Descriptions

Optics Pod

The optics pod for the GIA® Gemolite® NXT is located at the top of the microscope and can be moved up and down to adjust the focus. Move the optics pod by turning the focus control knob located on the focus column.

The optics pod is a photomicroscope configuration with two oculars for viewing and one photoport at the top of the pod for attaching a digital camera. (Note that the image projected through the optical system to the camera is the same as the right ocular.)

The left ocular will show a slightly different view due to the Greenough design of the microscope, which is responsible for the stereoscopic image when the left and right optical paths are viewed at the same time.

Projection Lens

This lens projects the image onto the camera sensor from the optical pod and is mounted onto the phototube.

Camera This CMOS camera is optimized for microscope use and has no mechanical moving parts in order to record vibration-free images. It is capable of 6.3 megapixel still images and 6 megapixel at 30 frames per second video recording.

USB Camera Cord This USB cord connects the camera to your computer and provides power to the camera.

Phototube The phototube is mounted on top of the optics pod, and the projection lens and camera assembly are mounted on top. The length of the tube is variable to aid in parfocality adjustment between the oculars and the camera.

Assembly Instructions

The GIA® Gemolite® NXT must be assembled before the photomicroscope components. See main assembly instructions for the GIA® Gemolite® NXT in the User Guide at GIA.edu/user-guides.

The main components for the GIA Gemolite NXT photomicroscope are the photomicroscope optics pod, phototube, projection lens, camera, and USB power cord.

After inserting the oculars into the photomicroscope optics pod, carefully mount it onto the GIA Gemolite NXT base and tighten the set screw to hold it in place.

Next, place the phototube on top of the photomicroscope port of the optics pod and rotate it clockwise to screw it into place. Gently tighten until it is snug. Do not overtighten.

Hold the camera body in one hand and thread the projection lens onto the camera body by rotating clockwise until it is snug. Do not overtighten.

Insert the camera and projection lens assembly into the top of the phototube and gently tighten the setscrew. Make sure the camera USB port is facing the rear of the microscope.

Insert the USB cord into the USB port on the camera and connect the other end of the cord to your computer.

Adjust the Parfocality of the Optics

Focus the ocular on a subject after adjusting them as described in the **GIA® Gemolite® NXT in the User Guide at GIA.edu/user-guides.**

With the camera on and a live view of the sample on your computer, loosen the lower set screw (counterclockwise) on the phototube. This will allow you to adjust the length of the tube, which allows the user to focus the subject on the screen, while the subject is also in focus in the ocular.

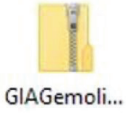
When the live view image is in focus at the same time as the image viewed in the oculars, tighten the lower set screw clockwise on the phototube.

When all optical components are in focus at the same time, the microscope system is parfocal and ready for use.

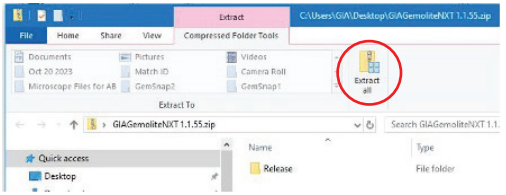
Software

Install Software

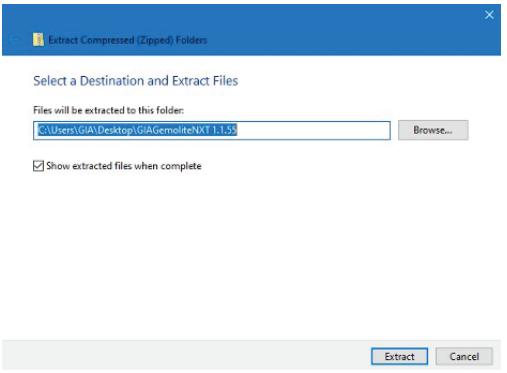
- To install GIA's Gemolite® NXT viewing software, select the file **"GIAGemoliteNXT"** on the provided USB drive and save the zip file to your computer's desktop.



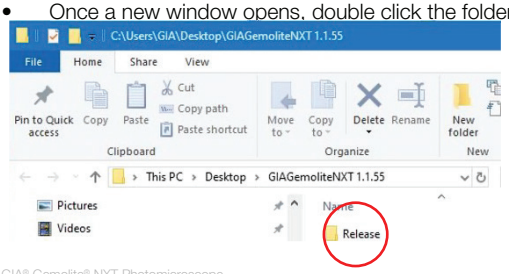
- Open the folder and click **Extract All**.



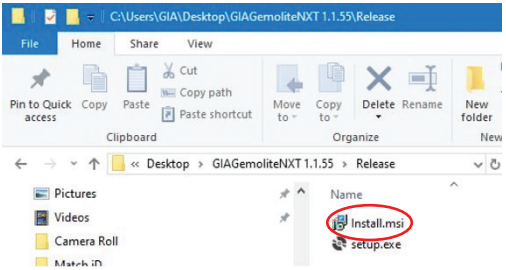
- Select a destination to save the folder.



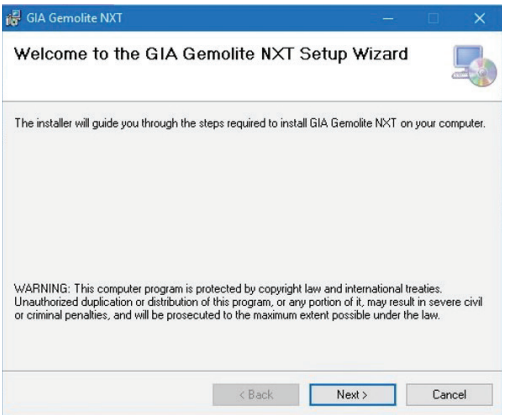
- Once a new window opens, double click the folder named **Release**.



- Double click the **Install.msi** icon.

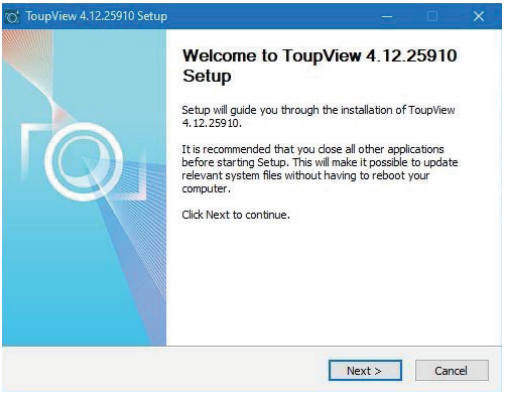


- The **GIA® Gemolite® NXT Setup Wizard** will prompt you through the next steps.

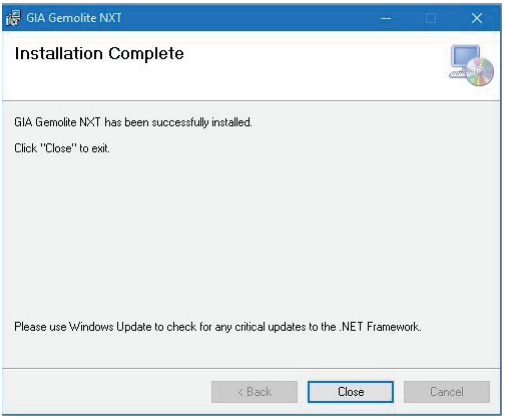


- Click **I Agree** to the License Agreement and **Next**.

- **Allow changes** at your computer's prompting.
- Once the software begins installing, another window will pop up under the GIA® Gemolite® NXT installation window.
- This software is called **ToupView** and will need to be installed to complete the process. Repeat the steps above to install **ToupView**.



- Once the software is installed, the **Installation Complete** window will appear. Click **Close**.

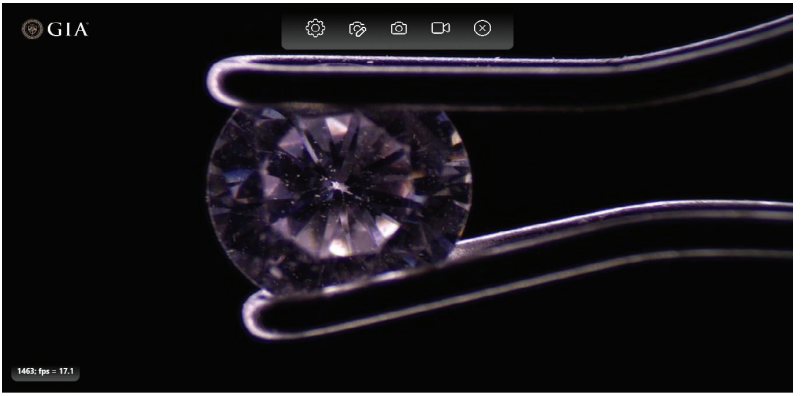


Open Software

- Close all windows and look for the **GIA Gemolite NXT** icon located on your desktop. Double click the icon to open.

- A loading screen will appear.

- Once the software opens, scroll to the top to see a **Menu**.



- Click the icons at the top of the **Menu** to:

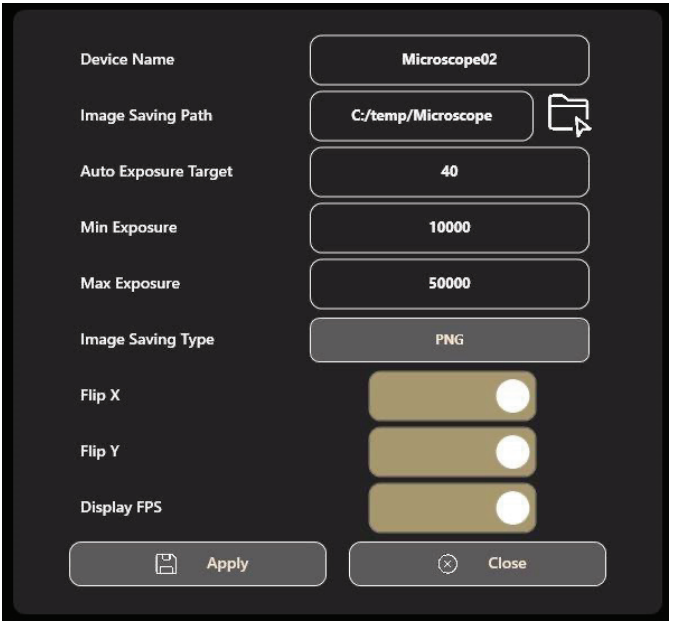
Change Settings	Save an image with notation	Save an image without notation	Save a video file	Exit the software

Adjust Software Settings

In the **Menu**, under **Settings** you have the ability to:

- Name your device
- Chose the location to save images
- Adjust exposure
- Choose the image file type to save
- Flip the image depending on the configuration of the camera.
    - (Chose the image flip option that allows the camera image to appear in the same orientation as the view through the oculars.)
- Display frames per second

Once you have selected your preferred settings, click **Apply** then **Close**.

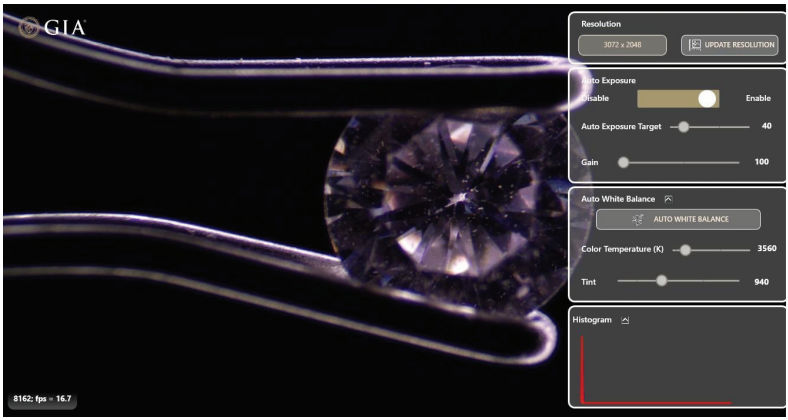


Additional Settings

Hover your mouse on the right side of the screen, and other setting options will appear:

- Resolution
- Auto Exposure
- Auto White Balance
- Histogram

(To get started, the default settings are appropriate. Adjust these settings as you feel comfortable.)



You are now ready to connect your photomicroscope to your computer and begin using this software.

Camera Specifications

- Sensor: Sony IMX178 (color)
- Sensor Type: BSI CMOS
- Sensor Size: 1/1.8” (7.37mm x 4.92mm)
- Pixel Size: 2.4µm x 2.4µm
- Sensor Pixels: 6.3MP (3072x2048)
- Sensitivity: 425mv
- Max Framerates: 30 fps @ 3072x2048, 38fps @ 1536x1024
- Binning: 1x1, 2x2
- Exposure Time: 0.244ms - 15s
- Connectivity: USB 3.0
- Compatibility: Windows (32/64 bit) 8.1/10/11, Mac OSX, Linux
- Reduction Lens: 0.5X C-mount to 23mm